PREVENTIVE PROTECTION SYSTEMS FROM
firefly ab
SWEDEN

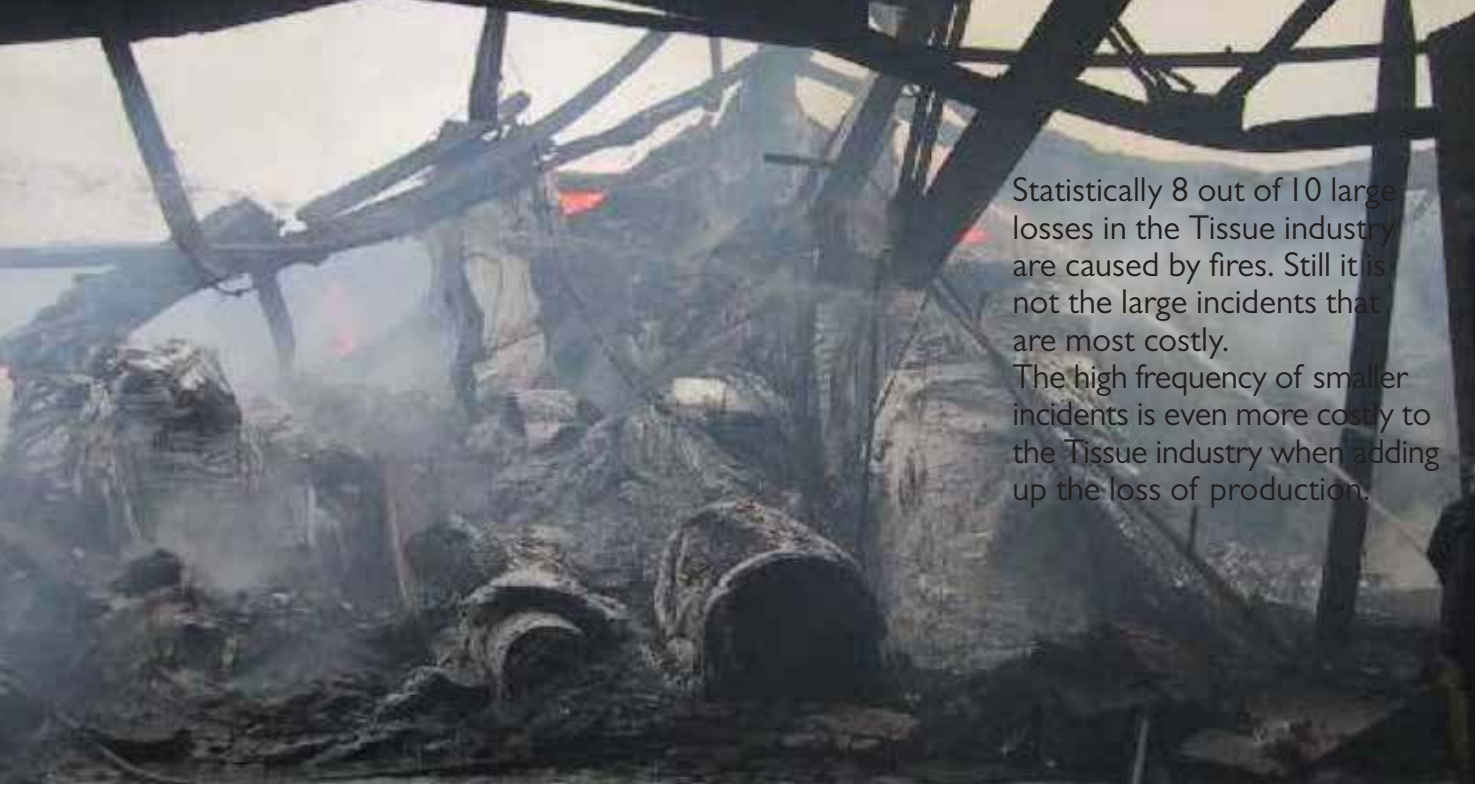
# FIREFLY TISSUE SOLUTIONS®

Unique fire prevention and protection solutions for Tissue machines and Storage areas

FM APPROVED

VdS

QUALITY SYSTEM CERTIFICATION DNV ISO 9001

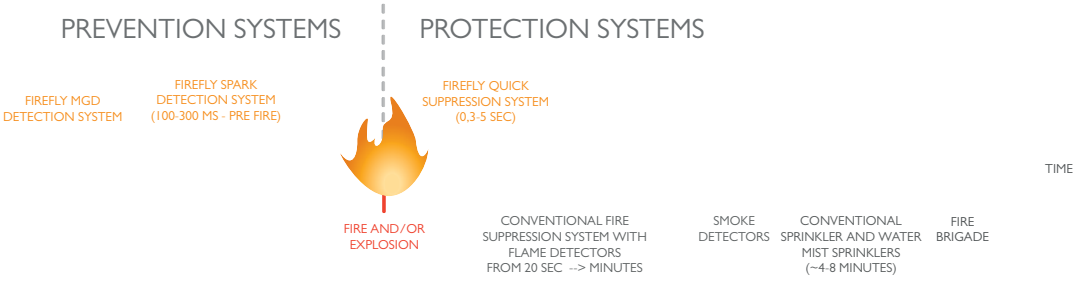


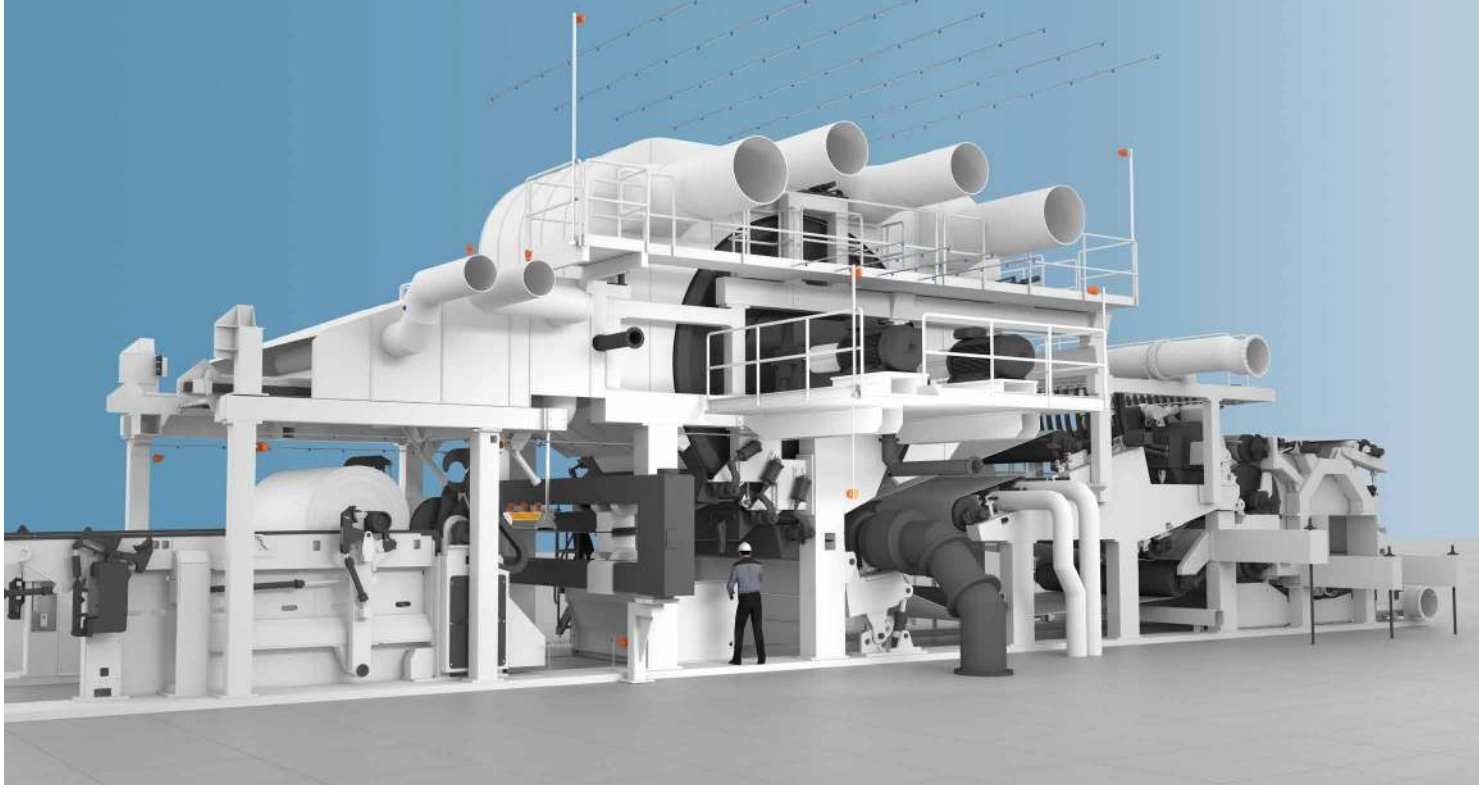
Statistically 8 out of 10 large losses in the Tissue industry are caused by fires. Still it is not the large incidents that are most costly.
The high frequency of smaller incidents is even more costly to the Tissue industry when adding up the loss of production.

# Fire Hazards

Every year, people are injured and even killed as a result of industrial fires. Furthermore, the tissue industry worldwide loses millions of dollars per year in damages and production downtime due to fires.

The main fire risk in a tissue mill can often be related to several specific high-risk areas, typically where accumulation of dust and fibres occur in combination with friction and hot surfaces. By monitoring and protecting these high-risk areas through an appropriate fire protection system, with a quick response time, fires can be detected and extinguished before damages have occurred and before spreading into other areas. The quicker a fire can be detected and extinguished, the less damage it will cause, production losses will be kept to a minimum and employee safety will be greatly enhanced.





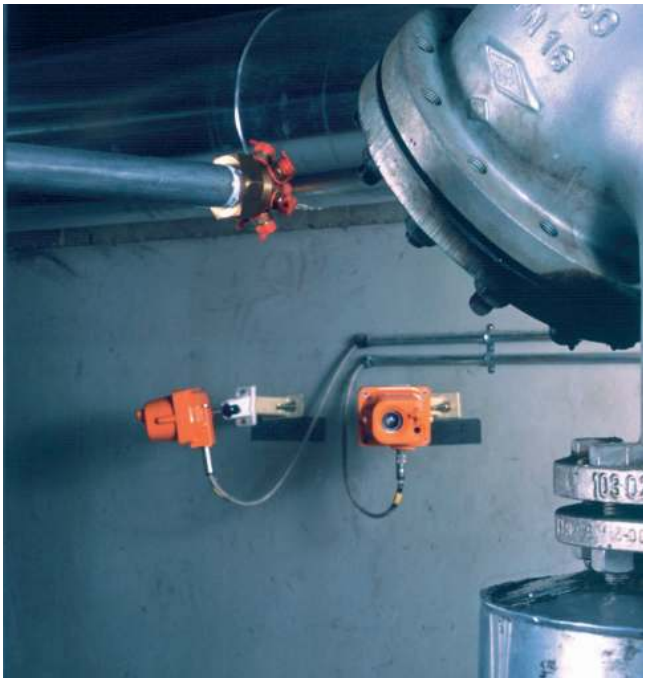
# High-Risk Areas

Many areas in a tissue production mill are exposed to accumulation of dry, highly flammable cellulose dust and fibre. The smallest outbreak of fire is extremely dangerous as it can easily escalate and spread throughout the facility.

Firefly offers a wide range of solutions for both prevention and protection of fires in these high-risk areas.

## Firefly Tissue Solutions®

- **Top of Yankee Hood & Ducts Protection**
- **Yankee Drive Side Protection**
- **Doctor Blade Area Protection**
- **Doctor Blades – Spark Alert**
- **WebScan™**
- **Dust Extraction Protection**
- **Dry-end of Machine Protection**
- **Reel-up Area Protection**
- **Storage Area Protection**



# Spark Detection Systems and Quick Suppression Systems

## The Spark Detection System – Fire prevention

The Firefly Spark Detection and Extinguishing System is certified according to Factory Mutual (FM)* and Schadenverhütung GmbH (VdS)*.
Firefly's unique Spark Detection System is based on True IR spark detectors that are insensitive to daylight. They are designed to detect all dangerous ignition sources, such as hot dark particles, sparks and flames. The Spark Detection System can be combined with a water exting- uishing zone that will, within milliseconds, extinguish the detected ignition source.

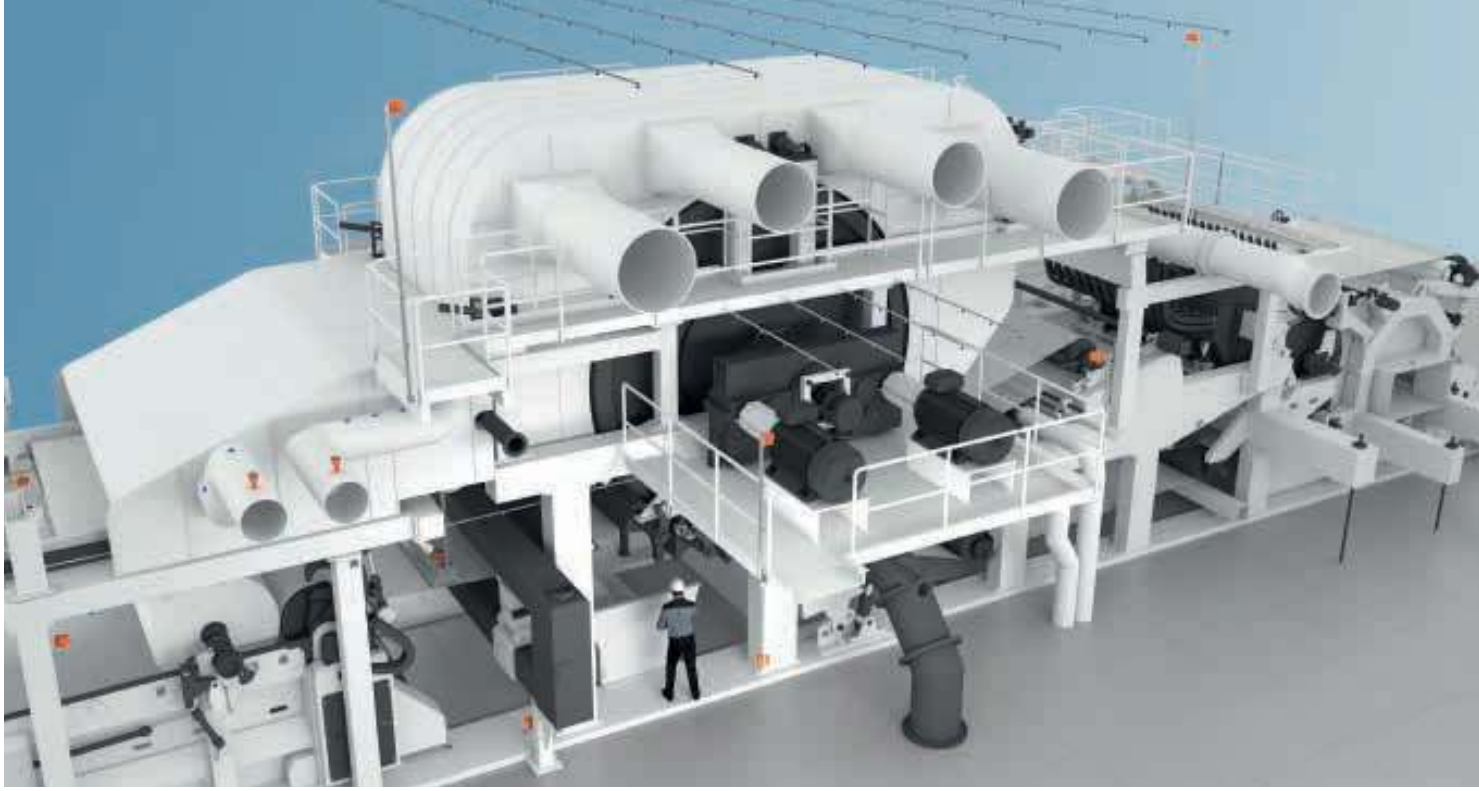
Firefly has also developed special solutions for the Tissue Industry, such as Spark Alert and WebScan™ system. Those special solutions are based on Firefly's unique True IR spark detector. Designed with this precision technology it will detect potential hazards long before the fire has started and alert the operators. No automatic extinguishing is needed in these applications.

* FM certificate no. 3060012, Vds approval no. S6990002.

## The Quick Suppression System – Fire protection

As the first company in the world, Firefly launched a third party certified Quick Suppression System.
The Firefly Quick Suppression System is a complete system designed for extremely quick detection and suppression of flames or fires in and around critical machinery and high-risk areas. The system has been fire tested against the test protocol DFL TM170307-1261 and verified by the DNV.

Firefly's Quick Suppression System operates with high performance flame detectors and efficient water mist suppression nozzles. The Firefly Water Mist System has remarkable fire suppression capabilities, utilizing a very small amount of water. The purpose of the Firefly Quick Suppression System is to act quick enough to avoid or significantly reduce damages and production downtime as well as avoiding a fire from escalating and spreading into other areas. Conventional extinguishing methods, for example sprinklers, need large flames generating a high amount of heat to react and an extensive amount of water is needed to extinguish a fire.



# Yankee Dryer and Drive Side Protection

Due to the large amount of dust accumulation around the Yankee hood, Yankee dryer and the drive side of the machine, the risk of fire in these areas is considered very high. Ignition can be caused by hot surfaces, or by smouldering nests, which can spread quickly by the rotation of the cylinder or by various other reasons. As a result of this a fire can spread rapidly. Once a fire has ignited, it can become not only dangerous but also difficult to extinguish.

Firefly's Quick Suppression Systems, that combine advanced and reliable flame detectors with water mist suppression nozzles, will be located to cover the risk zones around the Yankee dryer. Firefly also utilizes its unique Spark Alert System based on True IR spark detectors to prevent dangerous ignition sources and glowing nests from the Yankee dryer to spread and develop into fires.

## Firefly Tissue Solutions®

**Top of Yankee Hood & Ducts Protection**

**Yankee Drive Side Protection**

**Yankee Cylinder – Spark Alert**

# Doctor Blade Area Protection and Spark Alert

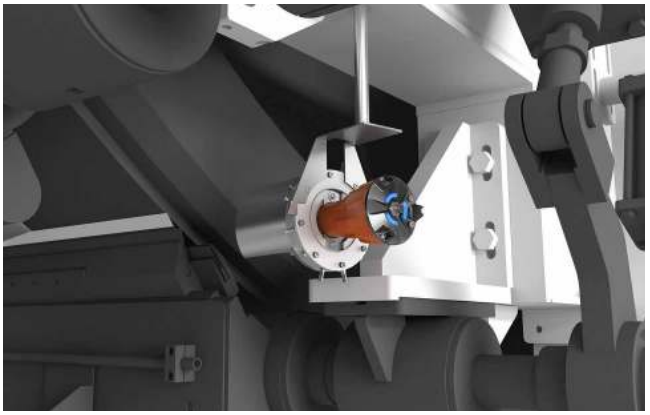
## Doctor Blade Protection

One of the most common areas for fires is in and around the Doctor blade area. Friction created by the Doctor blades in combination with accumulation of dust can cause fires which can spread rapidly.

Firefly's Quick Suppression System for this area utilizes flame detectors and water mist nozzles to quickly detect and suppress flames minimizing damages and production downtime.

## Doctor Blades – Spark Alert

Firefly Spark Alert System is located at the drive side and tending side of the Doctor blades. If any dangerous ignition sources are detected, such as hot black particles, glowing embers or sparks, then an alarm signal is given by the control unit. This will not activate the water mist, just alert the operators.



Firefly Spark Alert can be used as a monitoring device for the Doctor blades, for example to monitor misalignment, uneven coating or dull blades.

# Firefly WebScan™ System

Friction at the Doctor blade and smouldering particles from the Yankee dryer area can create dangerous ignition sources such as hot dark particles, glowing embers or sparks. These dangerous ignition sources can follow the tissue web and rapidly be enclosed and insulated within the parent roll. The roll is then transported to the warehouse for storage and can unexpectedly combust, at any time. It can take hours or even days but finally this unknowingly dangerous parent roll can burst into flames. Suddenly, a minor problem at the Doctor blades area or at the Yankee dryer area has now become a major loss in the warehouse and a problem for production requirements.

To prevent fire in stored parent rolls, Firefly has developed WebScan™. The WebScan™ system consists of True IR spark detectors mounted above the tissue sheet, between the Yankee dryer and the Reel-up. Heat radiation emitted from for example a hot spot in the tissue web is detected within milliseconds. After identifying such an ignition source an audio and visual alarm is provided to the operators controlling the process. The alarm will enable operators to remove the potentially dangerous parent roll.

# Dry-end of Machine Protection

Large amounts of dust accumulation in combination with ignition sources from the Yankee dryer and the Doctor blade constitute an extensive risk of fire in this area. In case the machine is enclosed from the Yankee dryer to the Reel-up, the fire risk could be even worse. Even with a dust extraction system, dust accumulation will occur. In the event of a fire and dust is whirled up, the fire can develop extremely quickly.

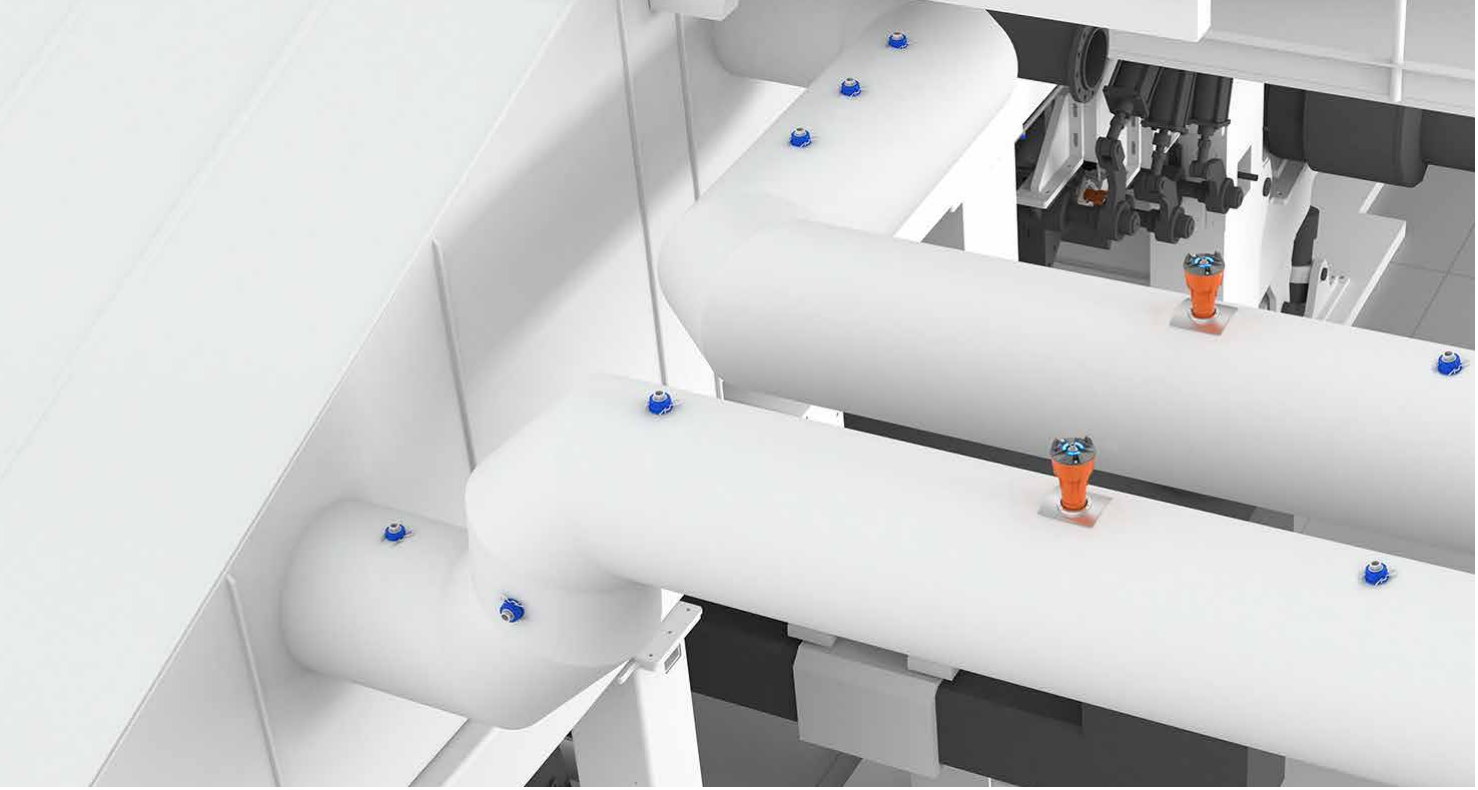
Firefly's Quick Suppression System, which combines advanced and reliable flame detectors and water mist suppression nozzles will be located to cover the risk zones in the Dry-end of the machine.

# Reel-up Area Protection

## Reel-up Protection

Dust build up and tissue debris occurring in this area is very combustible. Friction and heat, caused by paper stripes wrapped around the bearings for example, can easily ignite the dry material and cause a fire in the Reel-up area.

Firefly's Quick Suppression Systems, that combine advanced and reliable flame detectors and water mist suppression nozzles will be located to monitor the risk zones in the Reel-up area.



# Dust Extraction Protection

To reduce the dust accumulation and to keep the tissue web clean from dust, some machines are equipped with dust extraction systems. This consist of dust removal hoods typically above and under the tissue web. High environment temperatures in combination with dangerous ignition sources and hot particles can easily cause fires inside the ductwork.

Firefly True IR spark detectors and water mist nozzles located in the outlet ductwork are combined for a reliable solution.

# Storage Area Protection

Fires in tissue storage areas could be catastrophic and most of them start with a small smouldering in or around the parent roll making it hard to detect by common technology such as a smoke detector.

Firefly has developed two technologies that together create a solid protection combination for increased personal safety and for maintaining the continuity of operations.

## Firefly Multi Gas Detector

The Multi Gas Detector (MGD) can best be described as an "electronic nose." It is an early warning device which is able to identify a gas trend that could start a fire in the storage area. Once this trend is identified by the detector a visual and audible alarm is given. The MGD is able to deliver these early warning alarms, thanks to its array of electrochemical sensors. Through intelligent analysis of several different gas combinations, the detector can identify a combustion process at a very early stage.

## Firefly Open Area Flame Detector

Firefly's state-of-the-art flame detectors can be used to cover the risk zones in the storage area. The detectors ensure quick and reliable identification of flames with a high immunity to false positives. They are designed to be installed in harsh and dusty environments and can cover larger areas such as storage facilities. Firefly will custom make the system according to the layout of the storage area for optimal location of the detectors.

# As a Firefly customer you receive:

## Precision Detection
Systems are equipped with Multi-Channel flame detectors using advanced algorithms for Precision Detection of flames with a high immunity to false positives. True IR spark detectors enable Precision Detection of ALL types of ignition sources, such as hot black particles, glowing embers and sparks.

## Quick System Response Time
Limited damages and minimized production loss thanks to an extremely quick system response time.

## Minimum Water Usage
The Water Mist System with fire-tested and verified extinguishing capabilities utilizes very small amounts ofwater resulting in less impact on machinery and minimized production loss.

## Third Party Approved System
Increased safety through fire tested and third party approved fire prevention and protection systems custom made and optimized for your specific process.

## Local Presence and Know-How
Firefly has vast experience within different industrial processes. We provide local expertise all over the world.

## A Dedicated Partner
We strive to provide excellent service in everything we do and we measure regularly customer satisfaction.

## Proactive Service
In order to optimize your fire protection system we offer proactive service visits. With Firefly you will get an extensive system life cycle with availability of spare parts.

# About Firefly

Firefly is a Swedish company that provides industrial fire prevention and protection systems to the process industry worldwide. Since 1973, Firefly has specialized in creating customized system solutions of the highest technical standards and quality. Based on customer needs and research Firefly has developed and patented products and solutions, creating a unique portfolio of innovative products and system solutions to increase the level of safety.

The Firefly quality management system is certified according to ISO 9001 and EN ISO/IEC 80079-34. Firefly's products hold national and international third party certifications through FM, VdS, CSA, DNV among others.

For more information on our certifications and approvals,
please visit: www.firefly.se/en/company/approvals

Do you have questions about fire and explosion risks?
Our fire preventive experts will gladly share their knowledge and experience.

Firefly – Changing the world of industrial fire protection

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